

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1                    1 (currently amended): A nanofiber comprising a first polymer and a biological  
2 material, wherein said nanofiber has a plurality of nanopores, wherein the biological material is  
3 attached to the nanofiber or incorporated into the nanofiber, and wherein the nanofiber is formed  
4 from said first polymer.

1                    2 (original): The nanofiber of claim 1, wherein said first polymer is a synthetic  
2 polymer.

1                    3 (original): The nanofiber of claim 1, wherein said first polymer is a naturally  
2 occurring polymer.

1                    4 (original): The nanofiber of claim 2, wherein said synthetic polymer is a  
2 member selected from the group consisting of: poly(ethylene oxide), poly(vinyl alcohol),  
3 poly(ethylene naphthalate), polyaniline, polyacrylic acid, polyacrylon nitrile, polystyrene,  
4 polymethylmethacrylate, poly(N-isopropylacrylamide), polyvinyl acetate, and derivatives  
5 thereof.

1                    5 (original): The nanofiber of claim 3, wherein said naturally occurring polymer  
2 is a member selected from the group consisting of: polysaccharides, polypeptides, cellulose,  
3 poly-L-lactide, cellulose, casein, and derivatives thereof.

1                    6 (original): The nanofiber of claim 1, wherein said biological material and said  
2 first polymer are present in a ratio of about 1:20 to about 20:1.

7 (original): The nanofiber of claim 1, wherein said biological material and said first polymer are present in a ratio of about 1:10 to about 10:1.

8 (original): The nanofiber of claim 1, wherein said biological material and said first polymer are present in a ratio of about 1:5 to about 5:1.

9 (original): The nanofiber of claim 1, wherein said biological material and said first polymer are present in a ratio of 1:4.

10 (original): The nanofiber of claim 1, wherein said biological material is covalently attached to said nanofiber via a linker.

11 (currently amended): The nanofiber of claim 10, wherein said linker is a member selected from the group consisting of: polyethylene glycol (PEG), polyacrylic acid (PAA), polyacrylamide (PAM) ~~as non-ionic~~, and dimethylaminoethyl methacrylate (DMAEMA) or combinations thereof.

12 (original): The nanofiber of claim 1, wherein said nanofiber is about 50 nm to about 1000 nm in diameter.

13 (original): The nanofiber of claim 1, wherein said nanopores are about 5 nm to about 500 nm in diameter.

14 (original): The nanofiber of claim 1, wherein said nanopores are about 25 nm to about 100 nm in diameter.

15 (original): The nanofiber of claim 1, wherein said nanopores are about 5 nm to about 25 nm in diameter.

16 (original): The nanofiber of claim 1, wherein said nanopores are about 10 nm to about 50 nm in diameter.

1                   17 (original): The nanofiber of claim 1, wherein said nanofiber is insoluble in an  
2 aqueous solution.

1                   18 (original): The nanofiber of claim 1, wherein said nanofiber is insoluble in an  
2 organic solution.

1                   19 (original): The nanofiber of claim 18, wherein said first polymer is  
2 crosslinked.

1                   20 (currently amended): The nanofiber of claim 1, further comprising a second  
2 polymer, wherein the nanofiber is formed from said first and second polymer.

1                   21 (original): The nanofiber of claim 20, wherein said first polymer and said  
2 second polymer are present in a ratio of about 1:20 to about 20:1.

1                   22 (original): The nanofiber of claim 20, wherein said first polymer and said  
2 second polymer are present in a ratio of about 1:10 to about 10:1.

1                   23 (original): The nanofiber of claim 20, wherein said first polymer and said  
2 second polymer are present in a ratio of 4:1.

1                   24 (original): The nanofiber of claim 20, wherein said first polymer and said  
2 second polymer are present in a ratio of 1:4.

1                   25 (original): The nanofiber of claim 20, wherein said first polymer and said  
2 second polymer are present in a ratio of 1:1.

1                   26 (original): The nanofiber of claim 20, wherein said first polymer is a synthetic  
2 organic polymer and said second polymer is a naturally occurring polymer.

1                   27 (original): The nanofiber of claim 1, wherein said biological material is a  
2 protein.

1                   28 (original): The nanofiber of claim 27, wherein said protein is a member  
2 selected from the group consisting of: integral membrane proteins, structural proteins,  
3 intracellular proteins, and enzymes.

1                   29 (currently amended): The nanofiber of claim 26, wherein said synthetic  
2 organic polymer is a member selected from the group consisting of: poly(ethylene oxide),  
3 poly(vinyl alcohol), poly(ethylene naphthalate), polyaniline, polyacrylic acid, polyacrylon nitrile,  
4 ~~polysaccharides, cellulose, poly-L-lactide~~, polystyrene, polymethylmethacrylate, poly(N-  
5 isopropylacrylamide), polyvinyl acetate and derivatives thereof, and said naturally occurring  
6 polymer is a member selected from the group consisting of: polysaccharides, polypeptides,  
7 cellulose, poly-L-lactide, cellulose, casein, and derivatives thereof.

1                   30 (original): The nanofiber of claim 28, wherein said protein is an enzyme.

1                   31 (original): The nanofiber of claim 30, wherein said enzyme is a member  
2 selected from the group consisting of: a lipase, a carbohydrase, a DNase, and a protease.

1                   32 (original): A membrane comprising a nanofiber comprising a first polymer  
2 and a biological material, wherein said nanofiber has a plurality of nanopores.

1                   33 (original): The membrane of claim 32, wherein said membrane is insoluble in  
2 an aqueous solution.

1                   34 (original): The membrane of claim 32, wherein said membrane is insoluble in  
2 an organic solution.

1                   35 (original): The membrane of claim 32, wherein said biological material is  
2 attached to said membrane via a linker.

1                   36 (original): The membrane of claim 35, wherein said linker is PEG.

1                   37 (original): The membrane of claim 35, wherein said linker is PAA.

1                   38 (original): A fabric comprising a nanofiber comprising a first polymer and a  
2 biological material, wherein said nanofiber has a plurality of nanopores.

1                   39 (original): The fabric of claim 38, wherein said biological material is attached  
2 to said nanofiber via a linker.

1                   40 (original): The fabric of claim 38, wherein said linker is PEG.

1                   41 (original): The fabric of claim 38, wherein said linker is PAA.

1                   42 (currently amended): An insoluble nanofiber comprising a polymer and a  
2 biological material, wherein said nanofiber has a plurality of nanopores and is insoluble in an  
3 aqueous solution, wherein the biological material is attached to the nanofiber or incorporated into  
4 the nanofiber, and wherein the nanofiber is formed from said polymer.

1                   43 (currently amended): An insoluble nanofiber comprising a polymer and a  
2 biological material, wherein said nanofiber has a plurality of nanopores and is insoluble in an  
3 organic solution, wherein the biological material is attached to the nanofiber or incorporated into  
4 the nanofiber, and wherein the nanofiber is formed from said polymer.